

## Section 2-5: Multiply and Divide Variable Expressions

**By the end of this lesson, you should be able to answer:**

- How are variable expressions simplified?
- How are variable expressions evaluated?

**Where you might see this in the real world:**

- Part-time job, weather, engineering, spreadsheets

Define the following terms:

1. Property of the opposite of a sum

2. Distributive property

When we are multiplying variable expressions, all we are doing is using the distributive property.

Example 1: Simplify.

a.  $-2(n - 5)$

b.  $.3(x + .7)$

c.  $-(2ab + 9ac)$

d.  $2x(4x + 7y)$

One way to look at dividing variable expressions is to divide **each term** in the numerator by the denominator. Another way to think about this is by making it a multiplication problem as such:

$$\frac{3 - x}{2} = \frac{1}{2} \bullet \frac{3 - x}{1} = \frac{1}{2} (3 - x) = \frac{3}{2} - \frac{1}{2} x$$

Example 2: Simplify. Practice both methods of division to see which one you prefer.

a.  $\frac{6x + 3}{3}$

b.  $\frac{10y - 5}{2}$

c.  $\frac{1.6 - .8z}{-8}$

d.  $\frac{9x + 5y}{7}$

Just as with working with variable expressions up to this point, we can also evaluate these expressions.

Example 3: Evaluate when  $x = 2$  and  $y = -4$ .

a.  $-3(x^2 + 1)$

b.  $-4|6 - y|$

c.  $\frac{|y - x|}{|x - y|}$

Homework:

"Nobody got anywhere in the world by simply being content." - Louis L'Amour